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- (71) Applicant (for all designated States except US): E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): DAWKINS, Tudor [GB/GB]; 135 Cambridge Road, Wimpole, Royston, Hertfordshire SG8 5OB (GB).
- (74) Agent: HEISER, David, E.; E.I. DU PONT DE NEMOURS AND COMPANY, LEGAL PATENT RECORDS CENTER, 4417 Lancaster Pike, Wilmington, DE 19805 (US).

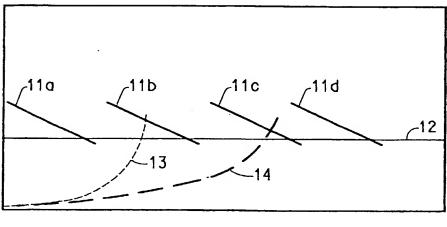
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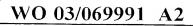
(54) Title: METHOD FOR CONTROLLING INVERTEBRATE PESTS AND/OR FUNGAL DISEASES WHICH AFFECT POTATOES OR OTHER CROPS



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(57) Abstract: A method of protecting crop plants by controlling phytophagous invertebrate pests and/or plant diseases caused by fungal pest is disclosed. The method involves applying a series of doses of an aqueous mixture containing an effective amount of a crop protection agent to the locus of the roots of the crop plants by means of perforated or porous conduit (e.g., tubing or irrigation tape) on or near the surface of the soil. At least one dose of the series is applied in the period from one week prior to planting to two days prior to harvest; and at least two doses of the series are applied at least two days apart during the growing season of the crop or the infestation period of a pest being controlled.







For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A01N25/00					
According to	International Patent Classification (IPC) or to both national classific	cation and IPC			
B. FIELDS					
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	ENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the re	elevant passages	Relevant to claim No.		
х	ROYER T A ET AL: "INSECTICIDE A	PPLICATION	1-14		
	AND INSECT CONTROL USING A DRIP				
	DELIVERY SYSTEM" PESTICIDE SCIENCE,				
	vol. 25, no. 3, 1989, pages 231-240,				
ļ	XP009016998 ISSN: 0031-613X				
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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2		Authorized officer .			
	NI. – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Romano-Götsch, R			



Interplication No
PCT/US 03/04881

C.(Continue	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	PC1/US 03/04881
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SCHIPKE L G ET AL: "Control of banana burrowing nematode (Radopholus similis) by fenamiphos applied through micro-irrigation in North Queensland." AUSTRALIAN JOURNAL OF EXPERIMENTAL AGRICULTURE, vol. 34, no. 1, 1994, pages 109-114, XP009016800 ISSN: 0816-1089 page 109, right-hand column -page 110, left-hand column page 111 -page 113; figures 1,2; tables 1,2	1-14
X	VRAIN T C ET AL: "APPLICATION OF NONVOLATILE NEMATICIDES THROUGH A TRICKLE IRRIGATION SYSTEM TO CONTROL PRATYLENCHUS-PENETRANS IN RASPBERRIES RUBUS-IDAEUS" CANADIAN JOURNAL OF PLANT PATHOLOGY, vol. 8, no. 1, 1986, pages 97-101, XP009016801 ISSN: 0706-0661 page 97, right-hand column -page 100, right-hand column	1-14
(HEUNGENS A ET AL: "Control of Western flower thrips (Frankliniella occidentalis) on Verbena hybrida by irrigation of systemic insecticides." MEDEDELINGEN FACULTEIT LANDBOUWKUNDIGE EN TOEGEPASTE BIOLOGISCHE, vol. 61, no. 3A, 1996, pages 859-863, XP000901763 1996 page 860 -page 862 -resumé-page 862	1-14
	GARABEDIAN S ET AL: "EFFECTS OF NONFUMIGANT NEMATICIDES APPLIED THROUGH LOW-PRESSURE DRIP IRRIGATION ON CONTROL OF MELOIDOGYNE-INCOGNITA ON TOMATOES" PLANT DISEASE, vol. 69, no. 2, 1985, pages 138-140, XP009016999 ISSN: 0191-2917 the whole document -/	1-14

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Interional Application No PCT/US 03/04881

	PC1/US U3/U4881
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WESTERDAHL B B ET AL: "Management of Pratylenchus penetrans on oriental lilies with drip and foliar-applied nematicides." JOURNAL OF NEMATOLOGY, vol. 25, no. 4 SUPPL., 1993, pages 758-767, XP009016785 ISSN: 0022-300X page 759, left-hand column	1-14
APT W J: "THE APPLICATION OF PHENAMIPHOS AND OXAMYL BY DRIP IRRIGATION FOR THE CONTROL OF THE RENIFORM NEMATODE ROTYLENCHULUS-RENIFORMIS ON PINEAPPLE IN HAWAII USA" JOURNAL OF NEMATOLOGY, vol. 13, no. 4, 1981, page 430 XP009016761 ISSN: 0022-300X the whole document	1-14
BELL A A ET AL: "Mechanisms of subsurface drip irrigation-mediated suppression of lettuce drop caused by Sclerotinia minor." PHYTOPATHOLOGY, vol. 88, no. 3, March 1998 (1998-03), pages 252-259, XP001155008 ISSN: 0031-949X cited in the application	1-14
OVERMAN A J: "NEMATOCIDES IN LINEAR DRIP IRRIGATION FOR FULL BED MULCH OF TOMATO" SOIL AND CROP SCIENCE SOCIETY OF FLORIDA PROCEEDINGS, vol. 34, 1975, pages 197-200, XP001154906 ISSN: 0096-4522 page 197, right-hand column -page 200, right-hand column	1-14
DUTCHER J D ET AL: "APPLICATION OF REDUCED RATES OF SYSTEMIC INSECTICIDES FOR CONTROL OF FOLIAR PECAN ARTHROPODS" JOURNAL OF ECONOMIC ENTOMOLOGY, vol. 77, no. 4, 1984, pages 1037-1040, XP001154908 ISSN: 0022-0493 abstract	1-14
	WESTERDAHL B B ET AL: "Management of Pratylenchus penetrans on oriental lilies with drip and foliar-applied nematicides." JOURNAL OF NEMATOLOGY, vol. 25, no. 4 SUPPL., 1993, pages 758-767, XP009016785 ISSN: 0022-300X page 759, left-hand column APT W J: "THE APPLICATION OF PHENAMIPHOS AND OXAMYL BY DRIP IRRIGATION FOR THE CONTROL OF THE RENIFORM NEMATODE ROTYLENCHULUS-RENIFORMIS ON PINEAPPLE IN HAWAII USA" JOURNAL OF NEMATOLOGY, vol. 13, no. 4, 1981, page 430 XP009016761 ISSN: 0022-300X the whole document BELL A A ET AL: "Mechanisms of subsurface drip irrigation-mediated suppression of lettuce drop caused by Sclerotinia minor." PHYTOPATHOLOGY, vol. 88, no. 3, March 1998 (1998-03), pages 252-259, XP001155008 ISSN: 0031-949X cited in the application the whole document OVERMAN A J: "NEMATOCIDES IN LINEAR DRIP IRRIGATION FOR FULL BED MULCH OF TOMATO" SOIL AND CROP SCIENCE SOCIETY OF FLORIDA PROCEEDINGS, vol. 34, 1975, pages 197-200, XP001154906 ISSN: 0096-4522 page 197, right-hand column -page 200, right-hand column DUTCHER J D ET AL: "APPLICATION OF REDUCED RATES OF SYSTEMIC INSECTICIDES FOR CONTROL OF FOLIAR PECAN ARTHROPODS" JOURNAL OF ECONOMIC ENTOMOLOGY, vol. 77, no. 4, 1984, pages 1037-1040, XP001154908 ISSN: 0002-0493

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